ITS-NY 2012 SPRING FORUM
April 12, 2012

Managing Weather-Related Events with ITS Technologies

PANEL 3 PRESENTATIONS
“Fleet Management during Weather Emergencies”

Panel Moderator:
Andy Bata, ITS-NY Past President,
MTA New York City Transit

“Delivering During a Weather Emergency,”
George Damoretcki, Golub Corporation/
Price Chopper Supermarkets

“The Role of Bus Operations in Evacuations,”
Donald Raimondi, MTA New York City Transit

“Interpreting Weather Forecasts and How to Apply them to Snow, Hurricane, and Other Emergency Agency Response,”
Jerry Carannante, NYC Department of Sanitation

Photos by Matt Ficarra, ITS-NY Board Member and Photographer Extraordinaire
Delivering During A Weather Emergency
128 Stores

Servicing 6 States:

• New York
• Vermont
• New Hampshire
• Massachusetts
• Connecticut
• Pennsylvania
170 Drivers

Includes:

• 9 Yard Drivers.
• 11 Drivers Domiciled in Syracuse.
• 6 Drivers Domiciled in Plattsburgh
Equipment

• 5 Yard Tractors

• 77 Road Tractors

• 400 Trailers
  (Dry Vans and Refrigerated Trailers)
  (48 ft. and 53 ft. trailer length)
Deliveries

• 950 Loads per week average
• Commodities Delivered:
  Grocery
  Perishable
  General merchandise
  Frozen Products
• Drivers dispatching every hour (3 to 7)
• 24 hrs. / Day, 7days per week delivery schedule.
Weather Related Delivery Challenges

• Road Closures (temporary and lengthy).
• Tandem Operation Stopped.
• Reduction In Driver Count.
• Increased Load Counts.
• Emergency Relief:
  Bottled Water, Generator Trailers, Refrigerated Trailers, Batteries, Flashlights, etc..
Information Resources For a Weather Emergency

15 Websites:
• State Roadways (511)
• Television Stations (both in and out-of-state)
• Webcams
• Weather Channel

Networking With Other Companies.

Feedback From Our Drivers And Stores.
Food Supply During a Weather Emergency

• People Count On Us To Be Open.

• We Are Helpful To Those In Need.

• We May Change The Way We Do Things, But We Do Not Shut Down.
“The Role of Bus Operations in Evacuations”

Donald C. Raimondi
Assistant General Manager, Strategic Planning and Development
MTA New York City Transit, Department of Buses
MTA Bus Company
About Buses

MTA Metropolitan Transportation Authority

MTA New York City Transit - Department of Buses

MTA MTA Bus Company

*Operations were merged in 2008
About Buses

Bus Operations

- NYCT Department of Buses and MTA Bus Company
  - Operates in the 5 Boroughs of New York City
  - 5,594 Buses
  - 235 Local, 4 BRT and 64 Express Routes
  - 2.5 Million Riders Daily
  - 29 Depots; 1 additional depot under construction
  - 3 Heavy Maintenance Facilities (includes training center)
  - 17,500 Employees
  - 787 Million Riders Annually

“The Role of Bus Operations in Evacuations”
Scope of Operations - Depots and Facilities

Facilities Legend
- NYC Transit Dept. of Buses
- MTA Bus
- NYC Transit Dept. of Buses (under construction)

February 2012

“The Role of Bus Operations in Evacuations”
Scope of Operations – Routes and Coverage

Area

“The Role of Bus Operations in Evacuations”
Storm Operations

1. Curtail service well in advance of storm, ensuring our customers, bus operators and equipment are out of harms way.

2. Regular service and additional service on routes that connect to shelters will continue until service is curtailed.

3. Activate the Bus Situation Room and Customer Advocate

4. Provide buses to OEM, NYPD and FDNY for emergency operations.
   • Bus Operators are not trained as first responders, they cannot attend to special needs.

5. After the storm passes, restore service in a staged approach to support Subways.

“The Role of Bus Operations in Evacuations”
Hurricane Irene August 26th thru 29th 2011

- Evacuations were focused in flood zones
  - Staten Island - Coney Island - Far Rockaway

Projected Storm Path on Aug 25th
Hurricane Irene August 26th thru 29th 2011

Key NYC Statistics

Population in the evacuation zone: 373,366
Emergency Shelters opened: 82
Evacuation Centers opened: 65
Special Medical Needs Shelters opened: 7
Est. Zone A Shelter Demand (2007 Plan): 70,831
People Sheltered: 9,446
Total Shelter Staff: 5,332
Hospitals evacuated: 7 (1,066 patients)
Nursing Homes evacuated: 18 (3,602 residents)
Adult Care facilities evacuated: 17 (2,088 residents)
Psychiatric facilities evacuated: 1 (400 residents)
Hurricane Irene August 26th thru 29th 2011

• Public was notified to take Mass Transit to shelters or areas located outside the flood zones.

• Friday August 26th Evacuations begin.
  • Additional service on routes that connect to shelters

• By 8:00pm on Friday, All Fares Suspended.

• 12:00 Noon on Saturday, “All MTA Service Suspended”.

“The Role of Bus Operations in Evacuations”
Hurricane Irene August 26th thru 29th 2011

• 9:00pm Saturday, “Zero Hour” all buses and operators in.

• 9:00am Sunday, Hurricane Irene makes landfall in Coney Island.

• 4:30pm Sunday, Partial service restored.

• 6:00am Monday
  • Bus and Subway service fully restored.
  • Normal fares resume.
Keys to managing the storm

• Ensuring our customers and operators are safe and out of harms way.

• Advance Planning
  • Notifications to the public.
  • Curtailment of service well in advance of storms.
  • Facility Preparations.

• Clearly communicate with OEM our role and service priorities, as well as providing possible resources.

• Ensuring the protection of our fleet and facilities.

• Activation of our Bus Situation Room and Customer Advocate to support all of the activities above.
  • A Concept of Operations clearly defines roles, functions and process.
Situation Room Concept

“The Role of Bus Operations in Evacuations”
Monitoring the Storm

• Command Center relies on 3 independent weather sources

• Situation Room monitors buses, keeps track of times and customers on board. (Customer Advocate)

• Situation Room also monitors facility status for flooding, power outages and other issues.

• Situation Room reports every hour to senior staff on status of operations. Conference calls every 2 hours with Division Managers.
Monitoring the Storm

- Snow Desk Application
  - Monitors Buses during the storm
  - Allows for post incident analysis and debriefings.

“The Role of Bus Operations in Evacuations”
Monitoring the Storm

- Future Vision - Bus Trek – Using our Bus Time Application Internally to monitor our fleet – “In Development”

”The Role of Bus Operations in Evacuations”
NEW YORK CITY
DEPARTMENT OF SANITATION

Weather Forecasting / Agency Application

Presented by:
Gerald Carannante
Asst. Chief Bureau of Operations
Introduction:

- **Contracting a weather service(s) for your agency**
- DSNY contracts 3 weather services each snow season. Contract specifies 4 daily forecasts: 06:00; 11:00; 18:00 and midnight. Further discussion......

- **SNOW appears in a forecast**
- Once snow is forecasted, (usually 3-4 days out--depending), planning will start. But, before you and your team can make competent staffing and equipment decisions, there is a very important detail to attend to:

- **THE DISCUSSION with the weather service(s).....**

1. The importance of doing this cannot be overemphasized. Regardless of the number of forecast’s, watches / warnings received, you must pin all the issues down as close and accurately as possible to plan correctly. This cannot be accomplished by simply “reading” the forecast, or receiving a watch or warning. Discussions will continue about 2x daily, right through the event.

2. In order to “DISCUSS” the forecast or anything else for that matter, you must have some degree of knowledge of the topic! Further discussion....

3. weather terms, and how they impact your forecast jurisdiction, and ultimately your agency planning. In time as you get better at it, you will be able to make better staffing / equipment decisions as a result.
RULE: Acquire a *basic* knowledge of meteorology. Gather as many forecasts as possible for comparison. Once you have a better understanding of what you are dealing with, that knowledge will be used in your discussion by simply “dropping” a few terms (speaking intelligently). It is quite interesting on how quickly you gain the forecaster’s attention by doing so (usually), and the discussion becomes far more informative and accurate. Further Discussion, personal and other.....
Terminology and BASIC Understanding

- **Jet Stream**—bands of strong wind in the upper levels of the atmosphere. THE CONVEYOR BELT FOR STORMS AND TEMPERATURES! Where was it this season???? The Weather Channel will show the Jet position quite often—present and future. Further discussion....

- **Computer models:** Usually run every 6 hours, the European model is usually the most reliable on three to six days out, NAM is good for 48 hours out. When you see the phrase “the models are in agreement”, forecast confidence is pretty high,

- **Alberta Clippers:** Storms originating in Canada, usually fast movers, hence the name “clipper”, usually not big snow makers for NYC unless there is some sort of intensification off shore.

- **Coastal Storms:** In this scenario the Jet Stream position is key, along with any intensification that occurs off the East coast...[I never trust a coastal system].. discussion on this past year’s scenario of February 23-26, Jet split and possible phasing forecast

- “**Inside Runners**”: Kind of the opposite of the coastal storm...the Jet is not positioned to steer the system off the coast and the storm runs west of NYC, pulling in warmer ocean air ...(usually sparing the metro area of a major snow/ice)...this season remember Cleveland, Pennsylvania, 4.5 inches of snow while we got just about nothing??—classic inside runner

- **Lake Effect Weather:** Bad for the surrounding lake area, but usually just some flurries, or squalls may make it down to us...you still need to be careful and probably plan some minimal staffing to be on the safe side for icy conditions

- **Dew Point:** An interesting fact: air temperature cannot go lower than the dew point temperature, (only in very special situations)

- **Trace:** Interesting word---what does it mean?
Pin down the START TIME OF THE EVENT

Where is the Jet Stream (you should already know), and where is it forecast to be the next few days?

Ground Temperatures??

Pin down temperatures at, during and after, wind speeds, ground temps and accumulations.

If temps are above freezing, will the precipitation associated with the low pressure system be heavy enough to lower the temps and cause snow?

ASSIGN YOUR STAFFING—based on your discussion, and use the plan that would work best, but always be ready to adjust if necessary.

Assign your crews productive work if you are “waiting for snow”, but close enough for prompt re-assignment.....if applicable

Avoid the “shift change” at the storm’s onset if you can (a major way to get a good start and get “ahead”)

Is there a Rain / Snow / Ice line involved?

Use “weather stations” (we have 21) to get your own information for temps/measurements/conditions—get hourly reports for comparison

Keep a Storm Folder for each event for reference (weather, condition reports, equipment/personnel etc.)

The actual folder for Storm 2 is here for perusal

Do you have different planning levels to meet specific weather situations?
**Forecast Details**

<table>
<thead>
<tr>
<th></th>
<th>Wednesday 6AM-6PM</th>
<th>Wednesday 6PM-6AM</th>
<th>Thursday 6AM-6PM</th>
<th>Thursday 6PM-6AM</th>
<th>Friday 6AM-6PM</th>
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<tbody>
<tr>
<td>TEMPS</td>
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<tr>
<td>EARLY HIGHS</td>
<td>COLD</td>
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<tr>
<td>LOWS</td>
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<tr>
<td>WIND DIR</td>
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<tr>
<td>WIND SPD (MPH)</td>
<td>15-25</td>
<td>6-13</td>
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<tr>
<td>HIGHEST GUSTS</td>
<td>35-40 MPH</td>
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<tr>
<td>PRECIP PROB + TIMES</td>
<td>NONE EXPECTED</td>
<td>NONE EXPECTED</td>
<td>NONE EXPECTED</td>
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<td>NONE EXPECTED</td>
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<tr>
<td>PRECIP DURATION</td>
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<tr>
<td>PRECIP TYPE + INTENSITY</td>
<td>GROSS RAIN</td>
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<tr>
<td>RAINFALL</td>
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<tr>
<td>SHOWFALL</td>
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<tr>
<td>VISIBILITY</td>
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<tr>
<td>TIME OF VIS S1 MILE IN FOG</td>
<td>7+</td>
<td>7+</td>
<td>7+</td>
<td>7+</td>
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</tr>
<tr>
<td>GROUND TEMPS</td>
<td>40</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
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</tbody>
</table>

**Synopsis:** A cold front is currently passing across the region with strong and gusty winds. Temperatures will fall throughout the day today after the front passes. High pressure will move in later today, aiding offshore tomorrow afternoon. A cold front moves through overnight tomorrow night, bringing some snow showers. High pressure moves in for Friday. A storm system will bring some precipitation on Saturday, with dry weather for Sunday.
SAMPLE FORECAST 1/18/12
[STORM 2]---3 days prior

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**MetroWeather**

<table>
<thead>
<tr>
<th>METROPOLITAN 2012 NEW YORK FORECAST</th>
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</thead>
<tbody>
<tr>
<td><strong>DATE</strong></td>
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<tr>
<td>---</td>
</tr>
<tr>
<td><strong>TODAY</strong> (6A-6P): PARTICLY TO MOSTLY SUNNY WITH A COLD WIND. <strong>TONIGHT</strong> (6P-6A): CLEAR TO PARTLY CLOUDY. <strong>THURSDAY</strong> (6A-6P): SOME SUN, THEN CLOUDS INCREASE <strong>THUR. NIGHT</strong> (6P-6A): CLOUDY, BREEZY, RAIN &amp; OR SNOWSHOWERS <strong>FRIDAY</strong> (6A-6P): PARTLY TO MOSTLY SUNNY, BLUSTERY, COLD</td>
</tr>
<tr>
<td><strong>TEMPS (F)</strong></td>
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<tr>
<td><strong>WIND DIR.</strong></td>
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<tr>
<td><strong>GUSTS</strong></td>
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<tr>
<td><strong>PRECIPITATION</strong></td>
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<tr>
<td><strong>PRECIPITATION PROBABILITY</strong></td>
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<tr>
<td><strong>LIQUID TOTALS</strong></td>
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<tr>
<td><strong>SNOW TOTALS</strong></td>
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<tr>
<td><strong>START</strong></td>
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<tr>
<td><strong>CHANGEOVER TIME</strong></td>
</tr>
<tr>
<td><strong>STOP</strong></td>
</tr>
<tr>
<td><strong>VISIBILITY (MILES)</strong></td>
</tr>
<tr>
<td><strong>STRONGEST WIND GUSTS</strong></td>
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<tr>
<td><strong>LIQUID IN 6 HOURS:</strong></td>
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<tr>
<td><strong>GROUND TEMP:</strong></td>
</tr>
<tr>
<td><strong>SATURDAY:</strong></td>
</tr>
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</table>
Forecast 1 day prior---planning staffing will now be implemented post discussion

### Metro Weather

#### Metropolitan 2012 New York Forecast

<table>
<thead>
<tr>
<th>DATE</th>
<th>1/20/12</th>
<th>TIME</th>
<th>5AM</th>
<th>FORECASTER (S)</th>
<th>DON M</th>
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</thead>
<tbody>
<tr>
<td>TODAY (6A-6P):</td>
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<td>TONIGHT (6P-6A):</td>
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<td>SATURDAY (6A-6P):</td>
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<tr>
<td>SAT. NIGHT (6P-6A):</td>
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<tr>
<td>SUNDAY (6A-6P):</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPS (F)</th>
<th>30/35</th>
<th>24/29</th>
<th>31/36</th>
<th>24/29</th>
<th>38/43</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIND DIR.</td>
<td>NW → NORTH</td>
<td>NORTH → EAST</td>
<td>E → NORTH</td>
<td>NNE</td>
<td>NE → SE</td>
</tr>
<tr>
<td>SPEED</td>
<td>10-20 MPH</td>
<td>5-15 MPH</td>
<td>16-20 MPH</td>
<td>5-15 MPH</td>
<td>5-15 MPH</td>
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<tr>
<td>GUSTS</td>
<td>TO 25 MPH EARLY</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
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<tr>
<td>PRECIPITATION</td>
<td>NONE</td>
<td>SNOW</td>
<td>SNOW</td>
<td>SNOW</td>
<td>SNOW</td>
</tr>
<tr>
<td>PRECIPITATION PROBABILITY</td>
<td>→ 70% → 80% +</td>
<td>80% + → 10% +</td>
<td>→ 10% +</td>
<td>→ 10% +</td>
<td>→ 10% +</td>
</tr>
</tbody>
</table>
| LIQUID TOTALS | .10 - .20" | .15 - .30" | .15 - .30" | .15 - .30" | .15 - .30"
| SNOW TOTALS | 1" - 2" | 1" - 3" | 1" - 3" | 1" - 3" | 1" - 3"
| START | 1 AM - 3 AM | IN PROGRESS | IN PROGRESS | IN PROGRESS | IN PROGRESS |
| CHANGEOVER TIME | N/A | TC MIX PERHAPS AFTER 9 AM | TC MIX PERHAPS AFTER 9 AM | TC MIX PERHAPS AFTER 9 AM | TC MIX PERHAPS AFTER 9 AM |
| STOP | ONGOING | 12 PM - 2 PM | 5+ | 5+ | 5+ |
| VISIBILITY (MILES) | 5+ | 5+ | 5+ | 5+ | 5+ |
| STRONGEST WIND GUSTS: | TO 25 MPH EARLY TODAY | RELATIVE HUMIDITY: | 61% | MEDIUM THROUGH THE PERIOD |
| LIQUID IN 6 HOURS: | NONE | FORECAST CONFIDENCE | MEDIUM THROUGH THE PERIOD | MEDIUM THROUGH THE PERIOD |
| GROUND TEMP| LOW 30's | CLOUDY, WINDY & MILD WITH SHOWERS, CHANCE OF A THUNDERSTORM...HIGHS: 50/55 |
| MONDAY: | TUESDAY: | WINDY WITH SUN & CLOUDS...HIGHS: 49/45 |

| sunday (6A-6P): |         |      |       |                |       |
| saturday (6A-6P): |         |      |       |                |       |
| sat. night (6P-6A): |         |      |       |                |       |
| sat. night (6P-6A): |         |      |       |                |       |
| sunday (6A-6P): |         |      |       |                |       |
Sample Condition Report from Storm #2
In Closing

- You do not need to be a meteorologist to be an important asset to your agency and community. You simply need to acquire some weather “savvy”.
- Check the weather forecasts daily, make it a habit, all year long—look at your environment, see if you notice a front passing, wind direction or a change in said direction, incoming storms etc. The more you do it the better you will get.
- Use your new knowledge in personal situations, for example if you are heading to a beach, check the wind direction forecast. Onshore? Offshore? That can make a huge difference in your comfort level! (and flies too), depending on where the shore faces.
- Always know your “POSITION”—north, south, east or west
- Get used to making your plans based upon your forecast discussions